

Amendment and Response Under 37 C.F.R. 1.116

Applicant: Michael Bauer et al.

Serial No.: 10/598,143

Filed: August 18, 2006

Docket No.: 1550.236.101/2003P54067WOUS

Title: SEMICONDUCTOR COMPONENT HAVING A STACK OF SEMICONDUCTOR CHIPS AND METHOD FOR PRODUCING THE SAME

REMARKS

The following remarks are made in response to the Final Office Action mailed April 12, 2012. Claims 1-23 and 26 have previously been cancelled without prejudice. Claims 33-39 have been allowed. Claims 24-32 and 40-45 were rejected. Claims 24-45 remain pending in the application and are presented for reconsideration and allowance.

Claim Rejections under 35 U.S.C. § 102

Claims 24, 26-32 and 40-44 were rejected under 35 U.S.C. 102(b) as being anticipated by US Publication No. 2003/0232460 to Poo et al. (“Poo”).

Applicants respectfully submit that Poo fails to teach or suggest the semiconductor component as defined by independent claim 24. In particular, Applicants submit that Poo fails to teach or suggest **contact areas at the edge sides of semiconductor chips which are accessible from both the top side and the edge sides of the semiconductor chips**.

Poo describes a multichip module 90 including a plurality of chip packages 10 (e.g. 10A-10D) in stacked arrangement (Figure 17, ¶[0059]). Each chip package 10 includes bond pads 20 on a top surface of the chip for electrical connection to integrated circuitry within the chip (¶[0039]), with a conductive trace 28 extending from each bond pad 20 to a corresponding outer connector 31 formed from a conductive via 30 extending through the chip package at a peripheral edge of the chip (¶[0041, 0044]). A conductive column then runs vertically through the conductive vias 30 forming the outer connectors 31 to electrically connect the plurality of chip packages 10 of multichip module 90 in the vertical direction.

The Office Action, at page 2, equates the outer connectors 31 of Poo with the **contact areas** according to the present application and as defined by independent claim 25. However, outer connectors 31 are formed from conductive vias 30 extending through the chip at the periphery of chip package 10 and are connected by conductive traces 28 to bond pads 20, wherein bond pads 20, which are connected to integrated circuitry within the chip, are akin to the **contact areas** as defined by independent claim 25, not outer connectors 30/31. As described and illustrated by Poo, bond pads 20 located away from the periphery of the chip and are located so

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as to not interfere with subsequently fabricated outer connectors 31 (¶[0040]). As such, Applicants submit that bond pads 20 of Poo clearly do not disposed at the edge sides of semiconductor chips so as to be accessible from both the top side and the edge sides of the semiconductor chips, as defined by independent claim 24. Instead, bond pads 20 of Poo are conventional bond pads which are spaced apart from the chip periphery and accessible only from the top side of the chip.

In view of the above, Applicants respectfully submit that Poo fails to teach or suggest contact areas at the edge sides of semiconductor chips which are accessible from both the top side and the edge sides of the semiconductor chips, as defined by independent claim 24. Accordingly, Applicants respectfully request that the rejection of independent claim 24 under 35 USC 102 over Poo be withdrawn and that independent claim 25 be allowed.

Independent claim 40 includes limitations similar to those described above with respect to independent claim 24. As such, for at least the reasons described above with respect to the allowability of independent claim 24, Applicants respectfully request that the rejection of independent claim 40 under 35 USC 102 over Poo also be withdrawn and that independent claim 40 be allowed as well.

Since claims 26-32 depend from and further define patentably distinct independent claim 24, and claims 41-44 depend from and further define patentably distinct independent claim 40, Applicants respectfully request that the rejections of dependent claims 26-32 and 41-44 under 35 USC 102 over Poo also be withdrawn and that dependent claims 26-32 and 41-44 be allowed as well.

Claim Rejections under 35 U.S.C. § 103

Claims 25 and 45 were rejected under 35 U.S.C. 103(a) as being unpatentable over Poo in view of US Publication No. 2003/0132527 to Coomer (“Coomer”).

Since claims 25 and 45 depend respectively from patentably distinct independent claims 24 and 40, Applicants respectfully request that the rejections of dependent claims 25 and 45

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under 35 USC 103 over Poo in view of Coomer be withdrawn and that dependent claims 25 and 45 be allowed as well.

Applicants further that submit that claims 25 and 45 are also independently allowable as Poo cannot be modified in view of Coomer as asserted by the Office Action so as to include semiconductor chips having two or more different chip sizes.

Poo describes a method of stacking chips 10 to form a multichip module 90 (Figure 17, ¶[0059]). As described above, the chips 10 have vias 30 which are formed along saw lines at the wafer level. When the chips 10 are singulated along the saw lines, the vias are sawed “in-half” and form semicircular outer connectors 31 along the peripheral edges of the singulated chips. The chips are then stacked, and a vertical conductive column 88 is disposed within the vertical arrangement of semicircular outer connectors 31 to electrical connect the stacked chips 10 of the multichip module 90. In order to apply the vertical conductive column 88 to electrically connect the chips 10 in the vertical direction, the semicircular outer connectors 31 of the stacked chips must vertically align with one another. As such, the chips 10 must be of the same dimensions and cannot be of two or more different chips sizes, as defined by claims 25 and 45.

As such, in addition to being allowable for depending from and further defining patentably distinct independent claims 24 and 40, Applicants submit that claims 25 and 45 are independently allowable as well. Accordingly, Applicants respectfully request that the rejections of claims 25 and 45 under 35 USC 103 over Poo in view of Coomer be withdrawn and that claims 25 and 45 be allowed as well.

Allowable Subject Matter

Claims 33-39 have been allowed.

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CONCLUSION

In view of the above, Applicant respectfully submits that pending claims 25-45 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 25-45 is respectfully requested.

No fees are required under 37 C.F.R. 1.16(h)(i). However, if such fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 50-0471.

Please consider this a Petition for Extension of Time for a sufficient number of months to enter these papers, if appropriate. At any time during the pendency of this application, please charge any additional fees or credit overpayment to Deposit Account No. 500471.

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

Any inquiry regarding this Amendment and Response should be directed to Steven E. Dicke at Telephone No. (612) 573-2002, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

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Respectfully submitted,

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